

IN THE CLAIMS:

10. (Currently Amended) A protected cathode substrate structure of a field emission display device, said protected cathode substrate comprising:

a) a cathode substrate of a field emission display device, said cathode substrate comprising an electron emitting structure disposed above one side thereof, wherein said cathode substrate comprises high-sodium glass; and

b) a substantially continuous barrier layer of substantially uniform thickness disposed over said one side of said cathode substrate, wherein said barrier layer prevents electron bombardment by electrons originating from said electron emitting structure.

11. (Canceled)

12. (Original) The protected cathode substrate structure of a field emission display device of Claim 10, wherein said barrier layer is comprised of a substantially transparent, electron-damage resistant material.

13. (Original) The protected cathode substrate structure of a field emission display device of Claim 10, wherein said barrier layer has a thickness sufficient to prevent substantial penetration of said

electrons through said barrier layer such that said electrons do not impinge said cathode structure.

14. (Original) The protected cathode substrate structure of a field emission display device of Claim 10, wherein said barrier layer is comprised of silicon dioxide, Al_2O_3 , CrO_x , ZnO , Si_3N_4 , SiO_2 , TaO_5 , Tin oxide, ITO, ZrO_2 , Y_2O_3 , TiO_2 , and MgO and combinations thereof.

15. (Original) The protected cathode substrate structure of a field emission display device of Claim 14, wherein said barrier layer has a thickness of approximately 100 nanometers.

D' 16. (Original) The protected cathode substrate structure of a field emission display device of Claim 10, wherein said barrier layer prevents the migration of contaminants from said cathode substrate into said field emission display device.

17. (Currently Amended) The protected cathode substrate structure of a field emission display device of Claim ~~11~~ 10, wherein said barrier layer prevents the migration of sodium from said cathode substrate into said field emission display device.

18. (Original) The protected cathode substrate structure of a field emission display device of Claim 10, wherein said barrier layer is electrically conductive.

36. (Currently Amended) A method for protecting a cathode structure of a field emission display device, said method comprising the steps of:

a) providing a cathode structure of a field emission display device, said cathode structure comprising an electron emitting structure disposed above one side thereof, wherein said cathode structure comprises high-sodium glass; and

b) disposing a substantially continuous barrier layer of substantially uniform thickness over said one side of said cathode structure, wherein said barrier layer prevents penetration by electrons.

DI 37. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein said cathode structure comprises a cathode substrate of said field emission display device.

38. (Canceled)

39. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein step b) comprises disposing said barrier layer over said cathode structure such that said barrier layer has a thickness sufficient to prevent substantial penetration of said electrons therethrough.

40. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein step b) comprises disposing a barrier layer over said cathode structure wherein said barrier layer is selected from the group consisting of silicon dioxide, Al_2O_3 , CrO_x , ZnO , Si_3N_4 , SiO_2 , TaO_5 , Tin Oxide, ITO, ZrO_2 , Y_2O_3 , TiO_2 and MgO and combinations thereof.

41. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein step b) comprises disposing said barrier layer to a thickness of approximately 100 nanometers over said substrate structure.

DI 42. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein step b) comprises disposing said barrier layer over said cathode structure wherein said barrier layer prevents migration of contaminants from said cathode structure into said field emission display device.

43. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein step b) comprises disposing said barrier layer over said cathode structure such that said barrier layer prevents migration of sodium from said substrate structure into said field emission display device.

44. (Original) The method for protecting a cathode structure of a field emission display device as recited in Claim 36 wherein step b)

comprises disposing an electrically conductive barrier layer over said cathode structure.

45. (New) A protected cathode substrate structure of a field emission display device, said protected cathode substrate comprising:

a) a cathode substrate of a field emission display device, said cathode substrate comprising an electron emitting structure disposed above one side thereof; and

b) a substantially continuous barrier layer of substantially uniform thickness disposed over said one side of said cathode substrate, wherein said barrier layer prevents electron bombardment by electrons originating from said electron emitting structure, and wherein said barrier layer is selected from the group consisting of Al_2O_3 , CrO_x , ZnO , Si_3N_4 , TaO_5 , Tin oxide, ITO, ZrO_2 , Y_2O_3 , TiO_2 , and MgO and combinations thereof.

46. (New) The protected cathode substrate structure of a field emission display device of Claim 45, wherein said cathode is comprised of a high-sodium glass.

47. (New) The protected cathode substrate structure of a field emission display device of Claim 45, wherein said barrier layer is comprised of a substantially transparent, electron-damage resistant material.

48. (New) The protected cathode substrate structure of a field emission display device of Claim 45, wherein said barrier layer has a

thickness sufficient to prevent substantial penetration of said electrons through said barrier layer such that said electrons do not impinge said cathode structure.

49. (New) The protected cathode substrate structure of a field emission display device of Claim 45, wherein said barrier layer has a thickness of approximately 100 nanometers.

D!
Cont. 50. (New) The protected cathode substrate structure of a field emission display device of Claim 45, wherein said barrier layer prevents the migration of contaminants from said cathode substrate into said field emission display device.

51. (New) The protected cathode substrate structure of a field emission display device of Claim 50, wherein said barrier layer prevents the migration of sodium from said cathode substrate into said field emission display device.
